 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: MIA08MA203		Aircraft Registration Number: N92MD	
		Occurrence Date: 09/27/2008		Most Critical Injury: Fatal	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place District Heights	State MD	Zip Code 20747	Local Time 2358	Time Zone EDT	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility: 3.46			
Aircraft Information Summary					
Aircraft Manufacturer AEROSPATIALE		Model/Series SA365N-1 D/N1		Type of Aircraft Helicopter	
Revenue Sightseeing Flight: No			Air Medical Transport Flight: Medical Emergency		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>The following is an INTERIM FACTUAL SUMMARY of this accident investigation. A final report that includes all pertinent facts, conditions and circumstances of this accident will be issued upon completion, along with the Safety Board's analysis and probable cause of this accident.</p> <p>-----</p> <p>HISTORY OF FLIGHT</p> <p>On September 27, 2008, at 2358 eastern daylight time, an Aerospatiale (Eurocopter) AS365N1, N92MD, call sign Trooper 2 (T2), registered to and operated by the Maryland State Police (MSP) as a medical evacuation flight, was substantially damaged when it collided with trees and terrain in Walker Mill Regional Park, District Heights, Maryland. The commercial pilot, one flight paramedic, one field provider, and one of two automobile accident patients being transported were killed. The other patient being transported survived the helicopter accident and was taken to a local hospital with serious injuries. The flight originated from a landing zone located at Wade Elementary School, Waldorf, Maryland, on September 27, 2008, at 2337, in VFR conditions destined for the Prince George's County Hospital (PGH), Cheverly, Maryland, and was operated under the provisions of 14 Code of Federal Regulations (CFR) Part 91.</p> <p>The flight had been cleared by air traffic control (ATC) for an instrument landing system (ILS) approach to runway 19R at Andrews Air Force Base (ADW), Camp Springs, Maryland. Instrument meteorological conditions prevailed at the time of the accident, and no flight plan was filed. The MSP were using the Automatic Dependent Surveillance-Broadcast (ADS-B) global navigation system for tracking the accident flight and flight dispatch services were received prior to the initiation of the visual flight rules (VFR) flight.</p> <p>Review of ADS-B data revealed the MSP System Communications (SYSCOM) duty officer received the medical evacuation mission request at 2301:51. Review of SYSCOM audio recordings revealed T2 was notified of the mission at 2302:13, and departed ADW at 2310:22 to the automobile accident site to pick up the two patients. The flight arrived at the landing zone about 2319, and departed at 2337 with the patients aboard. T2 diverted to ADW at 2347:30 because of unfavorable weather conditions at PGH.</p> <p>Review of communication transcripts for the Federal Aviation Administration (FAA) Potomac Approach Control, Washington Reagan National Airport and ADW Tower revealed T2 contacted Washington Tower at 2344:24, and stated, "Uh yes sir we just ran into some heavy stuff. I don't think we're going to be able to make it all the way to the hospital." At 2348:12, T2 contacted Potomac Approach, requested an ILS approach to ADW and was issued radar vectors by the controller for the ILS runway 19R approach. The controller advised T2 that the most recent weather report for ADW showed ceiling 1,800 feet broken, visibility 7 statute miles, temperature 21 degrees Celsius (C), and dew point 19 degrees C. At 2355:03, T2 was instructed to contact ADW Tower. The ADW Tower controller cleared T2</p>					
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for the option (ATC authorization for an aircraft to make a touch-and-go, low approach, missed approach, stop and go, or full stop landing at the discretion of the pilot) and provided the current wind (090 at 5) at 2355:30. At 2356:43, T2 informed the controller he was not picking up the glide slope. The controller replied, "T2 roger it's showing green on the panel but you're the only aircraft we've had in a long time so I don't really know if it's working or not." T2 responded at 2356:59, "OK, could I get an ASR approach in?" The controller responded at 2357:04, "There isn't anybody to do that I'm, I'm not current on that I can't do it." There were no further transmissions received from T2.

A civilian pilot working for the MSP as Trooper 8 (T8), based in Norwood, Maryland, reported he overheard T2 on a scanner state he was unable to land at PGH due to fog and was returning to ADW. Trooper 8 then looked at the weather for Gaithersburg, Maryland and ADW, which were both "good." He also checked Tipton, Maryland, and College Park, Maryland, which were both below minimums with ceilings between 500 to 600 feet.

Trooper 8 added that the SYSCOM duty officer notified him at 0025 that T2 was missing, and requested he launch and head towards ADW. Trooper 8 departed Norwood, encountered low-level clouds near the northern edge of the Washington, D.C. Metropolitan Flight Restricted Zone (FRZ), and aborted the flight. After returning to Norwood, T8 and his medic proceeded in a vehicle to the area where T2 was thought to have crashed. T8 and his mechanic then located the accident site at 0158.


PERSONNEL INFORMATION

The pilot, age 59, held a commercial pilot certificate issued on June 28, 1979, with ratings for rotorcraft-helicopter, and instrument helicopter. He also held a private pilot certificate with a rating for airplane single-engine land. In addition, the pilot held a flight instructor certificate issued on August 20, 1985, with ratings for rotorcraft-helicopter and instrument helicopter. The pilot was issued a second-class medical certificate on September 26, 2008, with the restriction, "must wear corrective lenses." The pilot's last flight review was conducted on October 27, 2007, and his last instrument proficiency check was completed on May 13, 2008. Review of the pilot's logbook revealed he had 5,225.1 total flight hours of which 2,770 hours were in make and model. The pilot had recorded 5,200.9 hours as pilot-in-command. The pilot had recorded 1,919.9 hours of night flight. His last recorded night flight was on September 16, 2008. The pilot's last recorded instrument flight was on May 13, 2008, during his instrument proficiency check. The pilot had logged 1.9 hours of actual instrument experience from June 17, 2006 to September 13, 2008.

AIRCRAFT INFORMATION

The Aerospatiale SA365N-1 helicopter is a twin engine, single main rotor helicopter that has a retractable tricycle landing gear. There are four main rotor blades and a fenestron (multi-bladed ducted fan tail rotor). The helicopter has four doors, two on each side, to provide entrance and exit for pilot and passengers. The four-bladed main rotor is mounted on the main gearbox, which is directly above the cabin. Two Turbomeca Arriel 1C1 engines are mounted side by side aft of the main gearbox. Both engines have separate drive shafts to the main transmission, which then reduces engine rpm and distributes torque upward to drive the main rotor, and aft through the tail rotor gear box to drive the fenestron. At the time of the accident, MSP reported that the helicopter had flown 8869.1 total flight hours and had 34,575 total landings. The helicopter was not equipped with a terrain awareness warning system (TAWS), and a night vision imaging system (NVIS) was not being utilized during the flight.

A review of the aircraft records revealed the helicopter had accumulated 8,862.2 total flight hours as of the morning of the accident. The accident flight was approximately .9 hours. According to the aircraft logbook, a 100-hour airframe and engine inspection was accomplished 3.2 hours prior to the accident on September 22, 2008; at an aircraft total time of 8865.9 hours. The aircraft logbook also showed that the pitot/static and transponder inspections were accomplished on April 4,

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2008, at an aircraft total time of 8596.0 hours.

The No.1 engine, had accumulated a calculated 7,077.3 hours at the time of the accident, and the No.2 engine had accumulated a calculated 7,426.5 hours at the time of the accident. The No.1 engine was overhauled by Turbomeca USA on June 27, 2005. The engine had accumulated 1,120 hours since the overhaul. The No.2 engine was overhauled by Turbomeca Canada, on October 30, 2006. The engine had accumulated 574.7 hours since overhaul.

The helicopter was last refueled at ADW on September 26, 2008, with 60 gallons of JP8 fuel. The helicopter departed ADW on the mission with 1,180 pounds of fuel. The Hobbs meter indicated 8210.0 hours at the accident site.

METEOROLOGICAL INFORMATION

The ADW 0011 surface weather observation was: wind 090 degrees at 3-knots, visibility 4 miles, mist, scattered clouds at 200 feet, broken ceiling at 500 feet, temperature 20 degrees Celsius, dew point temperature 20 degrees Celsius, and altimeter setting 29.91 inches of mercury.

WRECKAGE AND IMPACT INFORMATION

The wreckage was located 3.46 miles north of the approach end of runway 19R at ADW in a heavily wooded area. Examination of the accident site revealed the debris path was orientated on a 191-degree bearing and approximately 163 feet long. The start was marked by freshly broken tree branches atop an approximately 80-foot tall tree with the end of the debris path being marked by the main wreckage. In addition, no evidence of any preimpact mechanical failures or malfunctions with either the airframe, or any of its systems were identified.

MEDICAL AND PATHOLOGICAL INFORMATION

The State of Maryland, Office of the Chief Medical Examiner, conducted a postmortem examination of the pilot, on September 29, 2008. The cause of death was multiple injuries. The Forensic Toxicology Research Section, Federal Aviation Administration; Oklahoma City, Oklahoma performed postmortem toxicology of specimens from the pilot. The results were negative for carbon monoxide, cyanide, ethanol, basic, acidic, and neutral drugs.

The State of Maryland, Office of the Chief Medical Examiner, conducted a postmortem examination of the flight paramedic, on September 29, 2008. The cause of death was multiple injuries. Postmortem toxicology testing was positive for the presence of ethanol in the blood; vitreous and stomach content was negative. This pattern of distribution is consistent with postmortem production of ethanol.

The State of Maryland, Office of the Chief Medical Examiner, conducted a postmortem examination of the field provider, on September 29, 2008. The cause of death was multiple injuries. Postmortem toxicology testing for drugs and alcohol was negative.

The State of Maryland, Office of the Chief Medical Examiner, conducted a postmortem examination of the automobile accident patient being transported, on September 29, 2008. The cause of death was multiple injuries.

COMPANY INFORMATION

MSP Aviation Command was comprised of eight Bases in the State of Maryland (4 Regions, with 2 Sections in each Region). The accident helicopter was based at the MSP Washington Section (Andrews AFB), and it was the only MSP helicopter based there. The designation for the helicopter assigned to Washington Section was "Trooper 2." The specific (N number) helicopter that flew as "Trooper 2"

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could change from day-to-day, depending on helicopter availability.

At the time of the accident, five pilots were based at Washington Section.

ADDITIONAL INFORMATION

Federal Aviation Administration technicians conducted a post accident certification on the ILS runway 19R system after the accident and found all certification parameters to be within tolerances. The post accident recertification of the localizer and glide slope was completed on September 28, 2008. A flight check was conducted on September 29, 2008, and the system was within tolerances. Review of maintenance and monitoring logs for ILS runway 19R showed no unusual maintenance or malfunctions recorded for the system.

OTHER INFORMATION

The weather conditions that existed at the accident site during the time of the accident were observed to be: wind 090 degrees at 3-knots, visibility 4 miles, mist, scattered clouds at 200 feet, broken ceiling at 500 feet, temperature 20 degrees Celsius, dew point temperature 20 degrees Celsius, and altimeter setting 29.91 inches of mercury.

Nighttime conditions prevailed. The helicopter was not equipped with a terrain awareness warning system (TAWS). The pilot did not utilize a night vision imaging system (NVIS) during the flight. A radar altimeter was installed on the helicopter, and the pilot's altimeter was set on 300 feet and the co-pilot's altimeter was set on 45 feet. The accident flight was being tracked by a global navigation system ADS-B, and the pilot received flight dispatch services prior to the initiation of the flight. Additionally, a formal written flight risk assessment was not performed prior to the flight.

On February 7, 2006, the NTSB issued four safety recommendations to the FAA addressing EMS operations. They are as follows:

NTSB Recommendation No. A-06-12 - Require all EMS operators to comply with 14 CFR Part 135 operations specifications during the conduct of all flights with medical personnel onboard.

NTSB Recommendation No. A-06-13 - Require all EMS operators to develop and implement flight risk evaluation programs that include training all employees involved in the operation, procedures that support the systematic evaluation of flight risks, and consultation with others trained in EMS flight operations if the risks reach a predefined level.


NTSB Recommendation No. A-06-14 - Require EMS operators to use formalized dispatch and flight-following procedures that include up-to-date weather information and assistance in flight risk assessment decisions.


NTSB Recommendation No. A-06-15 - Require EMS operators to install terrain awareness and warning systems on their aircraft and to provide adequate training to ensure that flight crews are capable of using the systems to safely conduct EMS operations.


These four recommendations were also placed on the NTSB's "Most Wanted List of Safety Improvements" in October 2008.


Additionally, the NTSB stated in its January 2006 Special Investigation Report on EMS Operations that they were pleased that the FAA encouraged the use of night vision imaging systems in EMS operations, and that the NTSB would continue to monitor the applicability and usage of these devices in the EMS industry.

Also, on December 21, 2007, the NTSB issued two safety recommendations to the FAA regarding the use

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<p>of radar altimeters in EMS night operations. They are as follows:</p> <p>NTSB Recommendation No. A-07-111 - Require helicopter EMS operators to install radar altimeters in all helicopters used in HEMS night operations.</p> <p>NTSB Recommendation No. A-07-112 - Ensure that the minimum equipment lists for helicopters used in helicopter EMS operations require that radar altimeters be operable during flights conducted at night.</p> <p>Updated on Jan 15 2009 9:43AM</p>		
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Landing Facility/Approach Information						
Airport Name Andrews A.F.B.		Airport ID: ADW	Airport Elevation 280 Ft. MSL	Runway Used 19R	Runway Length 9003	Runway Width 200
Runway Surface Type: Concrete						
Runway Surface Condition: Dry						
Approach/Arrival Flown: ILS						
VFR Approach/Landing: None						
Aircraft Information						
Aircraft Manufacturer AEROSPATIALE		Model/Series SA365N-1 D/N1		Serial Number 6311		
Airworthiness Certificate(s): Utility						
Landing Gear Type: Tricycle						
Amateur Built Acft? No		Number of Seats: 6	Certified Max Gross Wt. 9038 LBS	Number of Engines: 2		
Engine Type: Turbo Shaft		Engine Manufacturer: ARRIEL	Model/Series: 1C1	Rated Power: 586 HP		
- Aircraft Inspection Information						
Type of Last Inspection 100 Hour		Date of Last Inspection 09/2008	Time Since Last Inspection 3.2 Hours	Airframe Total Time 8869.1 Hours		
- Emergency Locator Transmitter (ELT) Information						
ELT Installed?/Type Yes / Unknown		ELT Operated? No	ELT Aided in Locating Accident Site? No			
Owner/Operator Information						
Registered Aircraft Owner MARYLAND STATE POLICE		Street Address 3023 STRAWBERRY POINT ROAD				
		City BALTIMORE	State MD	Zip Code 21220		
Operator of Aircraft MARYLAND STATE POLICE		Street Address 3023 STRAWBERRY POINT ROAD				
		City BALTIMORE	State MD	Zip Code 21220		
Operator Does Business As:			Operator Designator Code:			
- Type of U.S. Certificate(s) Held: None						
Air Carrier Operating Certificate(s):						
Operating Certificate:			Operator Certificate:			
Regulation Flight Conducted Under: Public Use						
Type of Flight Operation Conducted:						
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First Pilot Information					
Name		City		State	Date of Birth
On File		On File		On File	On File
					Age
					59
Sex: M	Seat Occupied: Right	Occupational Pilot? Yes		Certificate Number: On File	
Certificate(s): Flight Instructor; Commercial; Private					
Airplane Rating(s): Single-engine Land					
Rotorcraft/Glider/LTA: Helicopter					
Instrument Rating(s): Helicopter					
Instructor Rating(s): Helicopter; Instrument Helicopter					
Current Biennial Flight Review? 10/2007					
Medical Cert.: Class 2		Medical Cert. Status: With Waivers/Limitations		Date of Last Medical Exam: 09/2008	
- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night
Total Time	5225	2770			192048
Pilot In Command(PIC)	5201				
Instructor					
Instruction Received					
Last 90 Days	48	48			18
Last 30 Days	16	16			8
Last 24 Hours					
Seatbelt Used? Yes		Shoulder Harness Used? No		Toxicology Performed? Yes	
				Second Pilot? No	
Flight Plan/Itinerary					
Type of Flight Plan Filed: None					
Departure Point		State	Airport Identifier	Departure Time	Time Zone
Waldorf		MD	None	2337	EDT
Destination		State	Airport Identifier		
Andrews AFB		MD	ADW		
Type of Clearance: IFR					
Type of Airspace: Class B					
Weather Information					
Source of Wx Information:					
Flight Service Station					
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Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
ADW	0011	EDT	280 Ft. MSL	346 NM	190 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			200 Ft. AGL	Condition of Light: Night/Dark	
Lowest Ceiling: Broken		500 Ft. AGL	Visibility: 4	SM	Altimeter: 29.91 "Hg
Temperature: 20 °C	Dew Point: 20 °C	Weather Conditions at Accident Site: Instrument Conditions			
Wind Direction: 90	Wind Speed: 3	Wind Gusts:			
Visibility (RVR): Ft.	Visibility (RVV) SM				
Precip and/or Obscuration:					

Accident Information					
Aircraft Damage: Substantial		Aircraft Fire: None		Aircraft Explosion: None	

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot	1				1
Second Pilot					
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew	2				2
Passengers	1	1			2
- TOTAL ABOARD -	4	1			5
Other Ground					
- GRAND TOTAL -	4	1			5

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Administrative Information		
Investigator-In-Charge (IIC) Carrol A. Smith		
Additional Persons Participating in This Accident/Incident Investigation: Tony F James FAA/AAI -100 Washington, DC Andrew J McAndrew Maryland State Police Baltimore, MD Joan M Gregoire Terbomeca USA Grand Prairie, TX Lindsay B Cunningham American Eurocopter Grand Prairie, TX Andrew J McAndrew Maryland State Police Baltimore, MD Lindsay Cunningham American Eurocopter Grand Prairie, TX Joan Gregoire Turbomeca USA Grand Prairie, TX		
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